

GENERAL NOTES

GENERAL

- G1. STRUCTURAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS STATE BUILDING CODE, EIGHTH EDITION, WITH AMENDMENTS TO IBC 2009.
- G2. CONTRACTOR SHALL EXAMINE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR VERIFICATION OF LOCATION AND DIMENSIONS OF CHASES, INSERTS, OPENINGS, SLEEVES, WASHES, DRIPS, REVEALS DEPRESSIONS AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON STRUCTURAL DRAWINGS.
- G3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE PROJECT.
- G4. OPENINGS IN SLABS OR WALLS LESS THAN 12 INCHES IN DIAMETER ARE GENERALLY NOT SHOWN. OPENINGS SHOWN ON STRUCTURAL DRAWINGS SHALL NOT BE REVISED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
- G5. OPENINGS IN SLABS, WALLS AND ROOF DECK IN ADDITION TO THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE INCORPORATED INTO THE WORK AS REQUIRED BY THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING CONTRACT DOCUMENTS.
- G6. DETAILS NOT SPECIFICALLY SHOWN SHALL BE SIMILAR TO THOSE SHOWN FOR THE MOST NEARLY SIMILAR SITUATION AS DETERMINED BY THE ENGINEER.
- G7. UNLESS NOTED ELSEWHERE IN THE CONTRACT DOCUMENTS, REQUIREMENTS NOTED BELOW SHALL APPLY.

FOUNDATIONS

- F1. BASED ON THE REPORT DATED MAY 9, 2016 PREPARED BY MCPHAIL ASSOCIATES LLC., FOOTINGS SHALL BEAR ON UNDISTURBED, NATURAL GLACIAL OUTWAS OR GLACIAL TILL DEPOSIT OR COMPACTED STRUCTURAL FILL PLACED DIRECTLY OVER GLACIAL OUTWASH TILL. FOOTINGS ARE PROPORTIONED UTILIZING A MAXIMUM ALLOWABLE DESIGN BEARING PRESSURE OF TWO TONS PER SQUARE FOOT.
- F2. BOTTOM OF FOOTING ELEVATIONS SHOWN ON DRAWINGS REPRESENT ESTIMATED DEPTHS AND ARE NOT TO BE CONSTRUED AS LIMITING THE AMOUNT OF EXCAVATION REQUIRED TO REACH BEARING MATERIAL.
- F3. EXTERIOR CONSTRUCTION SHALL BE CARRIED DOWN BELOW FINISHED GRADE TO A MINIMUM DEPTH OF 4 FEET.
- F4. FOOTING EXCAVATIONS ARE TO BE FINISHED BY HAND AND/OR RE-COMPACTED TO 95% OF MAXIMUM DRY DENSITY UNLESS OTHERWISE DIRECTED BY THE GEOTECHNICAL ENGINEER.
- F5. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE VALIDITY OF THE SUBSURFACE CONDITIONS DESCRIBED ON THE DRAWINGS OR TEST BORINGS. THIS DATA IS INCLUDED ONLY TO ASSIST THE CONTRACTOR DURING BIDDING AND SUBSEQUENT CONSTRUCTION AND REPRESENT CONDITIONS ONLY AT THE SPECIFIED LOCATIONS AT THE PARTICULAR TIME THEY WERE MADE.
- F6. ALL FINISHED FOUNDATION EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE ARCHITECT OR HIS/HER DESIGNATE BEFORE ANY CONCRETE IS PLACED.
- F7. UNLESS OTHERWISE NOTED, ALL FOOTINGS AND PILASTERS SHALL BE CENTERED UNDER SUPPORTED MEMBERS.
- F8. DOWELS FROM FOUNDATIONS INTO PIERS, COLUMNS OR WALLS SHALL BE THE SAME SIZE AND SPACING AS THE VERTICAL REINFORCEMENT IN THESE MEMBERS UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- F9. WHERE FOUNDATION ELEMENTS ARE TO HAVE FILL ON BOTH SIDES, EACH SIDE SHALL BE FILLED SIMULTANEOUSLY, MAINTAINING A COMMON ELEVATION.
- F6. PROVIDE DEWATERING AS REQUIRED TO ENSURE THAT NO FOUNDATION CONCRETE IS PLACED IN WATER OR ON FROZEN GROUND.
- F8. MAINTAIN ALL EXCAVATIONS IN A DRY CONDITION.

CONCRETE

- C1. CONCRETE WORK SHALL CONFORM TO THE LATEST EDITION OF "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318) AND SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301).
- C2. CONCRETE SHALL BE CONTROLLED CONCRETE, PROPORTIONED, MIXED AND PLACED UNDER THE SUPERVISION OF AN APPROVED TESTING AGENCY.
- C3. CONCRETE SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:
- | | |
|---|----------|
| (A) LEAN CONCRETE..... | 2000 PSI |
| (B) CONCRETE ON STEEL DECK (NORMAL WEIGHT)..... | 4000 PSI |
| (C) ALL OTHER CONCRETE..... | 4000 PSI |
- C4. CONCRETE SHALL HAVE THE FOLLOWING NOMINAL DRY DENSITY:
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|------------------------|---------|
| (A) NORMAL WEIGHT..... | 145 PCF |
|------------------------|---------|
- C5. CONCRETE TO BE EXPOSED TO WEATHER OR FREEZE/THAW ACTION IN THE FINISHED PROJECT SHALL BE AIR-ENTRAINED.
- C6. THE USE OF CONSTRUCTION JOINTS WHERE SHOWN ON THE DRAWINGS IS MANDATORY. OMISSIONS, ADDITIONS OR CHANGES SHALL NOT BE MADE EXCEPT WITH THE SUBMISSION OF A WRITTEN REQUEST TOGETHER WITH DRAWINGS OF THE PROPOSED JOINT LOCATIONS FOR APPROVAL OF THE ENGINEER.
- C7. WHERE CONSTRUCTION JOINTS ARE NOT SHOWN, DRAWINGS SHOWING LOCATION OF CONSTRUCTION JOINTS AND CONCRETE PLACING SEQUENCE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO PREPARATION OF THE REINFORCEMENT SHOP DRAWINGS.
- C8. SIZE OF CONCRETE PLACEMENTS UNLESS OTHERWISE SHOWN SHALL BE AS FOLLOWS
- | MAXIMUM LENGTH | MAXIMUM AREA |
|---------------------------|----------------------|
| A. SLABS CAST ON GRADE | 60 FEET 3600 SQ. FT. |
| B. WALLS, GRADE BEAMS | 30 FEET |
| C. CONCRETE ON STEEL DECK | 60 FEET 3600 SQ. FT. |
- C9. CONCRETE SLABS, INCLUDING SLABS ON STEEL DECK, SHALL BE CAST SO THAT THE SLAB THICKNESS IS AT NO POINT LESS THAN THAT INDICATED ON THE DRAWINGS.
- C10. CONCRETE SLABS SHALL BE CAST ALTERNATELY SO THAT ADJACENT SECTIONS ARE PLACED NO SOONER THAN THREE DAYS APART.
- C11. CONCRETE SHALL BE PLACED WITHOUT HORIZONTAL CONSTRUCTION JOINTS EXCEPT WHERE SHOWN OR NOTED. VERTICAL CONSTRUCTION JOINTS AND STOPS IN CONCRETE WORK SHALL BE MADE AT MIDSPAN OR POINTS OF MINIMUM SHEAR.
- C12. GROUT UNDER COLUMN BASE PLATES AND OTHER BEARING PLATES SHALL BE NON-SHRINK METALLIC GROUT WITH AMINIMUM COMPRESSIVE STRENGTH OF 5000 PSI.
- C13. PIPES OR CONDUITS PLACED IN SLABS ON GRADE SHALL NOT BE PLACED CLOSER THAN 3 DIAMETERS ON CENTERS AND SHALL HAVE AN OUTSIDE DIAMETER LESS THAN 1/2 OF THE SLAB THICKNESS AND BE POSITIONED SO THAT THEY DO NOT INTERFERE WITH SLAB REINFORCEMENT. ALUMINUM CONDUIT SHALL NOT BE PLACED IN CONCRETE. NO CONDUITS OR PIPES SHALL BE PLACED IN COMPOSITE SLABS ON METAL DECK.
- C14. ALL KEYS SHALL BE 2x4 (NOMINAL) UNLESS OTHERWISE SHOWN ON DRAWINGS.
- C15. CONCRETE CAST ON SLOPED SURFACES SHALL BEGIN AT THE LOWEST ELEVATION AND CONTINUE MONOLITHICALLY TO THE TOWARDS THE HIGHER ELEVATION UNTIL THE POUR IS COMPLETED.
- C16. ALL EXPOSED EDGES OF CONCRETE MEMBERS SHALL BE CHAMFERED 3/4" UNLESS SHOWN OTHERWISE ON THE ARCHITECTURAL DRAWINGS.
- C17. CONCRETE MUST REACH THE FOLLOWING PERCENTAGES OF ITS 28-DAY COMPRESSICE STRENGTH (f'c) BEFORE FORMS OR SHORES MAY BE REMOVED:
- | | |
|-------------------------------|---------------------|
| WALLS AND BEAM SIDES | 20% |
| COLUMNS | 40% (1500 PSI MIN.) |
| BEAM BOTTOMS (IF SHORED)..... | 70% |
| FLOOR SYSTEMS..... | 85% |
- C18. REFER TO ARCHITECTURAL DRAWINGS FOR CONCRETE FINISHES. WHERE FINISH IS NOT SPECIFIED, CONFORM TO REQUIREMENTS OF ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".
- C19. SEE ARCHITECTURAL DRAWINGS FOR DOOR AND WINDOW OPENINGS, DRIPS, WASHES, REGLETS, CONCRETE FINISHES, MASONRY ANCHORS, AND FOR MISCELLANEOUS EMBEDDED PLATES, BOLTS, ANCHORS, ANGLES, ETC.
- C20. THE PLACEMENT OF SLEEVES, OUTLET BOXES, BOX-OUTS, ANCHORS, ETC., FOR THE MECHANICAL, ELECTRICAL AND PLUMBING TRADES IS THE RESPONSIBILITY OF THE TRADES INVOLVED. HOWEVER, ANY BOX-OUTS NOT COVERED BY TYPICAL DETAILS IN THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED FOR APPROVAL.

REINFORCING

- R1. ALL CONCRETE REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60 EXCEPT WHERE NOTED. ALL REINFORCING TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING BARS MAY NOT BE WELDED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.
- R2. ALL WELDED WIRE FABRIC (W.W.F.) SHALL CONFORM TO ASTM A185. (Fy=65 KSI, MIN) W.W.F. SHALL BE PROVIDED IN FLAT SHEETS. THE FOLLOWING W.W.F. SHALL BE USED FOR AREAS SPECIFIED BELOW UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
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|---|-------------------|
| SLAB ON GRADE | 6x6 - W4.0 x W4.0 |
| SLAB ON METAL DECK | 6x6 - W4.0 x W4.0 |
| IN THE MIDDLE OF CONCRETE FILL FOR STAIRS | 2x2 - W1.4 x W1.4 |
- R3. REINFORCEMENT SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS UNLESS OTHERWISE NOTED ON DRAWINGS.
- R4. DETAILING OF REINFORCEMENT AND ACCESSORIES SHALL BE IN ACCORDANCE WITH ACI-315 - "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES.
- R5. PROVIDE AND SCHEDULE WITH THE SHOP DRAWINGS, ALL NECESSARY ACCESSORIES TO HOLD REINFORCING SECURELY IN POSITION. MINIMUM REQUIREMENTS SHALL BE:
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|--------------------------------------|-----------------|
| HIGH CHAIRS | 4'-0" ON CENTER |
| SLAB BOLSTERS | 4'-0" ON CENTER |
| SUPPORT BARS FOR HIGH CHAIRS - NO. 5 | |
- R6. ALL CONTINUOUS REINFORCEMENT SHALL HAVE A MINIMUM LAP AS REQUIRED FOR A CLASS B SPLICE UNLESS NOTED OTHERWISE.
- R7. ALL LAPS IN W.W.F. SHALL BE ONE MESH PLUS TWO INCHES AT SPLICES.

REINFORCING (CONTINUED)

- R8. CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE PROVIDED AS FOLLOWS UNLESS OTHERWISE SHOWN ON THE DRAWINGS:
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| A. SURFACES CAST AGAINST EARTH | 3 INCHES |
| B. FORMED SURFACES EXPOSED TO EARTH OR WEATHER #6 THROUGH #18 BARS..... | 2 INCHES |
| C. FORMED SURFACES NOT EXPOSED TO EARTH OR WEATHER SLABS, WALLS, JOISTS..... | 3/4 INCH |
| BEAMS, COLUMNS..... | 1 1/2 INCHES |
| D. SLABS ON GRADE (FROM TOP OF SLAB)..... | 1 1/2 INCHES |
| E. SLABS ON METAL DECK TOP..... | 3/4 INCH |
| BOTTOM..... | 3/4 INCH |
- MAXIMUM DEVIATION FROM THESE REQUIREMENTS SHALL BE ± 1/2 INCH FOR SECTIONS 10 INCHES THICK OR LESS; AND ± 3/8 INCH FOR SECTIONS OVER 10 INCHES THICK. SEE ACI 318.
- R9. ALL HOOKS SHOWN ON DRAWINGS SHALL BE STANDARD HOOKS UNLESS NOTED OTHERWISE.
- R10. WHERE CONTINUOUS BARS ARE CALLED FOR, THEY SHALL RUN CONTINUOUSLY AROUND CORNERS AND BE LAPPED AT NECESSARY SPLICES, OR HOOKED AT DISCONTINUOUS BARS. LAP LENGTHS SHALL BE AS GIVEN IN THE SPLICE AND DEVELOPMENT TABLE. LAP BEAM TOP BARS AT MID-SPAN AND BEAM BOTTOM BARS AT SUPPORTS, UNLESS OTHERWISE NOTED.

STRUCTURAL STEEL

- S1. STRUCTURAL STEEL WORK SHALL CONFORM TO "ALLOWABLE STRESS DESIGN SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS" (AISC 1989); CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC 1992) AND "STRUCTURAL WELDING CODE - STEEL (AWS D1.1, LATEST EDITION).
- S2. STRUCTURAL STEEL SHALL BE DETAILED IN ACCORDANCE WITH "DETAILING FOR STEEL CONSTRUCTION (AISC)" AND WHERE REQUIRED, DESIGNED IN ACCORDANCE WITH CITED REFERENCES.
- S3. STRUCTURAL STEEL DETAILS NOT SPECIFICALLY SHOWN SHALL BE TAKEN AS BEING SIMILAR TO THOSE SHOWN FOR THE MOST NEARLY SIMILAR CONDITION AS DETERMINED BY THE ARCHITECT.
- S4. STRUCTURAL STEEL SHALL BE NEW STEEL CONFORMING TO THE FOLLOWING:
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| (A) ASTM A992 GRADE 50 (F _y = 50 KSI) |
| (B) BASE PLATES SHALL CONFORM TO ASTM A36 (F _y = 36 KSI) |
| (C) HSS SHAPES - ASTM A500 GRADE B (F _y = 46 KSI) |
| (D) PIPES - ASTM A501 OR ASTM A53, TYPE E OR S GRADE B |
| (E) ANCHOR BOLTS - ASTM F1554 |
| (F) HIGH STRENGTH BOLTS - ASTM A325 |
- S5. ANCHOR BOLTS, LEVELING PLATES, OR BEARING PLATES SHALL BE LOCATED AND BUILT INTO CONNECTING WORK, PRESET BY TEMPLATES OR SIMILAR METHODS. PLATES SHALL BE SET IN FULL BEDS OF NON-SHRINK GROUT.
- S6. BOLTED CONNECTIONS SHALL BE AS FOLLOWS:
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| (A) MINIMUM BOLT DIAMETER - 3/4"; TWO BOLTS MINIMUM |
| (B) STANDARD, OVERSIZED, OR HORIZONTAL SHORT SLOTTED HOLES IN WEBS OF BEAMS. |
| (C) SHEAR CONNECTIONS FOR MOMENT CONNECTED MEMBERS - SLIP CRITICAL HIGH STRENGTH BOLTS IN SINGLE SHEAR. |
| (D) SHEAR CONNECTIONS FOR OTHER MEMBERS - SIMPLE SHEAR CONNECTIONS WITH EITHER FRICTION TYPE HIGH STRENGTH BOLTS IN SINGLE SHEAR OR BEARING TYPE HIGH STRENGTH BOLTS (THREADS INCLUDED IN SHEAR PLANE) IN SINGLE OR DOUBLE SHEAR. |
| (E) SIMPLE SHEAR CONNECTIONS SHALL BE CAPABLE OF END ROTATION PER AISC REQUIREMENTS FOR "UNRESTRAINED MEMBER". |
- S7. WELDED CONNECTIONS SHALL BE MADE BY APPROVED CERTIFIED WELDERS USING FILLER METAL CONFORMING TO E70XX OR F7X-EXXX WITH LOW HYDROGEN.
- S8. WELDS SHALL DEVELOPE FULL STRENGTH OF MATERIALS BEING WELDED. UNLESS OTHERWISE NOTED, EXCEPT THAT FILLET WELDS SHALL BE A MINIMUM OF 1/4".
- S9. BEAM CONNECTIONS, UNLESS BEAM REACTION IS NOTED, SHALL PROVIDE CONNECTION CAPACITY AS FOLLOWS:
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| (A) NON-COMPOSITE BEAMS: SUPPORT A REACTION "R" EQUAL TO 1/2 THE TOTAL UNIFORM CAPACITY OF BEAM FOR A GIVEN SHAPE, SPAN, AND GRADE OF STEEL PER "MAXIMUM TOTAL UNIFORM LOAD TABLES (LRFD)" AISC "MANUAL OF STEEL CONSTRUCTION". |
| (B) COMPOSITE BEAMS SUPPORT A REACTION "R" = MULTIPLIER x "R" (AS DEFINED ABOVE)
R ₁ = 1.50 x R (FOR BEAM DEPTH GREATER THAN 21")
R ₂ = 2.00 x R (FOR BEAM DEPTH GREATER THAN 14" BUT LESS THAN 21")
R ₃ = 2.25 x R (FOR BEAM DEPTH GREATER THAN 8" BUT LESS THAN 14") |
| (C) ADD TO "R" OR "R ₂ " THE LOADS OR REACTIONS OF MEMBERS SUPPORTED BY THE BEAM NEAR SUPPORTS AND/OR THE VERTICAL COMPONENTS OF FORCE IN DIAGONAL BRACING MEMBERS FRAMING INTO BEAM. |
- S10. ENDS OF COLUMNS AT SPLICES AND AT OTHER BEARING CONNECTIONS SHALL BE "FINISHED TO BEAR" TO COMPLETE TRUE BEARING.
- S11. PROVIDE STIFFENERS "FINISHED TO BEAR" UNDER ALL LOAD CONCENTRATIONS ON SUPPORTING MEMBERS, OVER COLUMNS AND WHERE SHOWN ON DRAWINGS.
- S12. PROVIDE TEMPORARY ERECTION BRACING AND SUPPORTS TO HOLD STRUCTURAL STEEL FRAMING SECURELY IN POSITION. SUCH TEMPORARY BRACING AND SUPPORTS SHALL NOT BE REMOVED UNTIL PERMANENT BRACING HAS BEEN INSTALLED AND CONCRETE FOR FLOOR SLABS HAVE ATTAINED 75% OF SPECIFIED CONCRETE STRENGTH.
- S13. STRUCTURAL STEEL MEMBERS SHALL BE FIREPROOFED PER SPECIFICATIONS.
- S14. FIELD CUTTING OF STRUCTURAL STEEL OR ANY MODIFICATIONS OF STRUCTURAL STEEL SHALL NOT BE MADE WITHOUT PRIOR APPROVAL BY ARCHITECT FOR EACH SPECIFIC CASE.
- S15. STRUCTURAL STEEL MEMBERS SHALL BE TRUE AND PLUMB BEFORE CONNECTION ARE FINALLY BOLTED OR WELDED.
- S16. FIELD MEMBERS AND CONNECTIONS EXPOSED TO WEATHER SHALL BE GALVANIZED.
- S17. CAMBER SHALL BE COLD-FORMED PROCESS IN CONFORMANCE WITH AISC SPECIFICATION AND TOLERANCE.
- STEEL JOISTS
- J1. DESIGN, DETAIL, FABRICATE AND ERECT ALL STEEL JOISTS IN ACCORDANCE WITH THE LATEST "STANDARD SPECIFICATIONS" OF THE STEEL JOIST INSTITUTE.
- J2. DESIGN JOISTS FOR UPLIFT.
- J3. WELD JOISTS TO STEEL SUPPORTS WITH TWO FILLET WELDS AT EACH END, 2" LONG, EACH SIDE OF JOIST BEARING PLATE.
- J4. ALL JOISTS SHALL BE THOROUGHLY INSPECTED DURING FABRICATION TO ENSURE COMPLIANCE WITH CODES AND GOOD WORKMANSHIP.
- J5. HANDLING AND ERECTION SHALL BE DONE WITH CARE. NO DUMPING ON THE GROUND WILL BE PERMITTED.
- J6. HANGERS FOR DUCTS, PIPES, UNITS, ETC. MUST BE ATTACHED TO JOISTS AT PANEL POINTS ONLY. (SEE TYPICAL DETAILS).

STEEL DECK

- D1. STEEL ROOF DECK SHALL BE GALVANIZED AND SHALL CONFORM TO ASTM A611, GRADE C
- D2. FABRICATE DECK UNITS IN LENGTHS TO SPAN THREE OR MORE SUPPORT SPACINGS.
- D3. GENERAL CONTRACTOR SHALL COORDINATE SIZE AND LOCATION OF FLOOR AND ROOF OPENINGS WITH ARCHITECTURAL AND MEP DRAWINGS

DESIGN LOADS

- L0. LOADS SHALL CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS STATE BUILDING CODE, 8TH EDITION AMENDMENTS TO IBC 2009
- L1. FLOOR LIVE LOADS

CLASSROOMS	50 PSF
CORRIDORS ABOVE FIRST FLOOR	80 PSF
FIRST FLOOR CORRIDORS	100 PSF
STAIRS AND EXITWAYS	100 PSF
OFFICES	50 PSF
PARTITION LOAD	20 PSF

L2. ROOF LIVE LOADS

GROUND SNOW LOAD: P_g = 55 PSF
FLAT SNOW LOAD: P_f = 0.7 (C_s) (I) P_g PLUS DRIFTING WHERE APPLICABLE
EXPOSURE FACTOR: C_e = 0.8
THERMAL FACTOR: C_t = 1.0
IMPORTANCE FACTOR: I = 1.1

L3. WIND LOADS

BASIC WIND SPEED (THREE-SECOND GUST): V = 100 mph
IMPORTANCE FACTOR: (I_w) = 1.15
OCCUPANCY CATEGORY: III
WIND EXPOSURE CATEGORY: C
PRESSURE - 21 PSF

L4. SEISMIC

IMPORTANCE FACTOR: I = 1.25, OCCUPANCY CATEGORY III
MAPPED SPECTRAL RESPONSE ACCELERATIONS: S_s = 0.29, S₁ = 0.071
SITE CLASS: D
SPECTRAL RESPONSE COEFFICIENTS: S_{rs} = 0.272, S_{rd} = 0.114
SEISMIC DESIGN CATEGORY: B
BASIC SEISMIC FORCE RESISTING SYSTEM: CONCENTRIC BRACED FRAMES
SEISMIC RESPONSE COEFFICIENT C_s = .097
EFFECTIVE SEISMIC WEIGHT W = 117 KIPS
DESIGN BASE SHEAR: V = C_sW = 12 KIPS
RESPONSE MODIFICATION FACTOR: R = 3 1/2
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE METHOD

ABBREVIATIONS

ABBREVIATION	WORD		
ASD	ALLOWABLE STRESS DESIGN	K	KIP (1000 POUNDS)
ALT	ALTERNATE		
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS	LE	LEFT END
ACI	AMERICAN CONCRETE INSTITUTE	LW	LIGHTWEIGHT
AIA	AMERICAN INSTITUTE OF ARCHITECTS	LWC	LIGHTWEIGHT CONC
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	LRFD	LOAD & RESISTANCE FACTOR DESIGN
AITC	AMERICAN INSTITUTE OF TIMBER CONSTRUCTION	LOC	LOCATION
ARCH	ARCHITECTURAL	LLV	LONG LEG VERTICAL
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	LP	LOW POINT
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS	LL	LOWER LAYER
AWS	AMERICAN WELDING SOCIETY	MFR	MANUFACTURER
AB	ANCHOR BOLT	MAS	MASONRY
@	AT RATE OF	MATL	MATERIAL
BAL	BALANCE	MECH	MECHANICAL
BM	BEAM	MEP	MECHANICAL, ELECTRICAL, PLUMBING
BRG	BEARING	MEZZ	MEZZANINE
BLK	BLOCK	MID	MIDDLE
B OR BOT	BOTTOM	MID-PT	MIDPOINT
BEV	BOTTOM EACH WAY	NfOPA	NATIONAL FOREST PRODUCTS ASSOCIATION
BRKT	BRAKET	NF	NEAR FACE
BLDG	BUILDING	NWC	NORMALWEIGHT CONCRETE
		NT	NOT IN CONTRACT
		NTS	NOT TO SCALE
		NO OR #	NUMBER
CIP	CAST-IN-PLACE	OSHA	OCCUPATIONAL SAFETY & HEALTH
CG	CENTER OF GRAVITY		ADMINISTRATION
CTRD	CENTERED	OC	ON CENTER
CO	CLEAN OUT	OPNG	OPENING
C	CENTERLINE	OH	OPPOSITE HAND
CLR	CLEAR	OD	OUTSIDE DIAMETER
COL	COLUMN		
CONC	CONCRETE	PC	PILE CAP
CMU	CONCRETE MASONRY UNIT	PL	PLATE
CRSI	CONCRETE REINFORCING STEEL INST.	PT	POINT
CONN	CONNECTION	PVC	POLYVINYLYL CHLORIDE
CONST	CONSTRUCTION	PCA	PORTLAND CEMENT ASSOCIATION
CONST JT OR G	CONSTRUCTION JOINT	PST	POT TENSIONED
CONT	CONTINUOUS	PSF	POUNDS PER SQUARE FOOT
CJ	CONTROL JOINTS	PSI	POUNDS PER SQUARE INCH
		P/C	PRECAST CONCRETE
DEPR	DEPRESSION	PCI	PRECAST CONCRETE INSTITUTE
DET	DETAIL	PTW	PRESSURE TREATED WOOD
DL	DEVELOPMENT LENGTH	P/S	PRESTRESSED
DIA OR Ø	DIAMETER		
DM	DIMENSION	R	RADIUS
DIR	DIRECTION	REF	REFERENCE
DTTO	DITTO	REIN	REINFORCE OR REINFORCEMENTING
DWLS	DOWELS	REM	REMAINDER
DOWN	DOWN	RETG	RETAINING
DWG	DRAWING	RET	RETURN
		RE	RIGHT END
EA	EACH	RD	ROOF DRAIN
EE	EACH END		
EF	EACH FACE	SECT	SECTION
ES	EACH SIDE	SC	SHEAR CONNECTOR
EW	EACH WAY	SHT	SHEET
EL	ELEVATION	SLV	SHORT LEG VERTICAL
ELEV	ELEVATOR	SIM	SIMILAR
EC	EPOXY COATED	SOG	SLAB ON GRADE
EQ	EQUAL	SPA	SPACES
EXP BOLT	EXPANSION BOLT	SPECS	SPECIFICATIONS
EXP JT	EXPANSION JOINT	SL	SLICE LENGTH
EXT	EXTERIOR	SS	SQUARE
		SS	STAINLESS STEEL
FF	FAR FACE	STD	STANDARD
FEET OR FOOT		STL	STEEL
FIN	FINISH	SDI	STEEL DECK INSTITUTE
FIN FL	FINISHED FLOOR	STJ	STEEL JOIST INSTITUTE
FFRF	FIREPROOF	SF	STEP FOOTING
FL	FLOOR	SFF	STIFFENER
FD	FLOOR DRAIN	STR	STRUCTURAL
FTG	FOOTING	SP	SUMP PIT
FND	FOUNDATION	SUP	SUPPORT
		SYM	SYMMETRICAL
GALV	GALVANIZED		
GA	GAGE OR GAUGE	TEMP	TEMPERATURE
GR	GRADE	THK	THICK OR THICKNESS
GB	GRADE BEAM	THRD	THREADED
		TE	THE BEAM
HT	HEIGHT	TBM	TIMBER
HP	HIP POINT	T	TOP
HS	HIGH STRENGTH	T&B	TOP & BOTTOM
H OR HORIZ	HORIZONTAL	TOS	TOP OF CONCRETE
HEF	HORIZONTAL EACH FACE	TOT	TOP OF STEEL
HIF	HORIZONTAL INSIDE FACE	TOW	TOP OF WALL
HOF	HORIZONTAL OUTSIDE FACE	TYP	TYPICAL
IN	INCH	UNO	UNLESS NOTED OTHERWISE
INCL	INCLUSIVE OR INCLUDING	UL	UPPER LAYER
INFO	INFO	U.L.	UNDERWRITERS LABORATORIES
ID	INSIDE DIAMETER		
INSUL	INSULATION	V OR VERT	VERTICAL
IBC	INTERNATIONAL BUILDING CODE	VEF	VERTICAL EACH FACE
INV	INVERT	VIF	VERTICAL INSIDE FACE
		VOF	VERTICAL OUTSIDE FACE
JT	JOINT	WPS	WELDING PROCESS